

WETLAND ASSESSMENT FOR EAST CAMPUS PARKING STRUCTURE AT OAK RIDGE NATIONAL LABORATORY

September 2009

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Environmental Protection and Waste Services Division

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Date Published: September 2009

Prepared by
OAK RIDGE NATIONAL LABORATORY
Oak Ridge, Tennessee 37831-6283
managed by
UT-BATTELLE, LLC
for the
U.S. DEPARTMENT OF ENERGY
under contract DE-AC05-00OR22725

CONTENTS

	Page
INTRODUCTION	1
SITE DESCRIPTION	1
PROJECT ACTIVITIES.....	1
WETLAND EFFECTS	6
WETLAND MITIGATION.....	7
SENSITIVE RESOURCES	7
ALTERNATIVES.....	7
CONCLUSION.....	8

INTRODUCTION

This Wetlands Assessment (Assessment) has been prepared in accordance with Presidential Order 11990 (“Protection of Wetlands”), which requires federal agencies to ensure that protection of wetlands is considered in decision-making processes. To meet these requirements, the U.S. Department of Energy (DOE) has published regulations that provide guidance on implementing these orders in Title 10, *Code of Federal Regulations*, Part 1022 (10 CFR 1022).

In accordance with the procedures described in 10 CFR 1022.11, the proposed activities have been reviewed. DOE has determined that activities associated with constructing a parking structure and parking lot on the East Campus of Oak Ridge National Laboratory (ORNL) will occur within small wetlands, so the wetlands protection requirements of the Presidential Executive Orders are applicable to the proposed activities.

SITE DESCRIPTION

ORNL is a research facility whose mission is to conduct applied research and engineering development in support of DOE programs in energy conservation, fusion, and other energy technologies and to perform basic scientific research in the physical and life sciences. The ORNL facilities complex, which is one of three major complexes on the DOE Oak Ridge Reservation (ORR) (Fig.1), lies primarily in two valleys: Bethel Valley and, to the south of Bethel Valley, Melton Valley. The major ORNL facilities are clustered in Bethel Valley, and the satellite facilities are more widely separated from each other in Melton Valley.

Fifth Creek and its tributaries drain the central portion of Bethel Valley at the ORNL facility (Fig. 2). The creek drains into White Oak Creek at the southern region of the main ORNL facilities complex. White Oak Creek flows into White Oak Lake before entering the Clinch River. The three delineated wetlands that will be impacted by the proposed action are located northeast of the intersection of Central Avenue and Fifth Street (Fig. 3).

PROJECT ACTIVITIES

The proposed action will involve constructing a three-story parking structure in the East Campus region of ORNL (Fig. 4). This will provide convenient parking in the most heavily populated area of ORNL. The proposed action will include (1) clearing the area of trees and vegetation, (2) leveling the site, and (3) constructing an approximately 200 ft long by 120 ft wide and three-story-high concrete and steel-supported parking structure. The parking structure is expected to provide 250 parking spaces. In addition, the surface areas on the west and south sides of the proposed parking structure will be leveled and asphalt-paved to accommodate approximately 70 vehicles. Asphalt-paved roads will be constructed to allow access to the parking structure and surface parking. Disturbed areas near the site will be leveled and seeded after completion of construction activities.

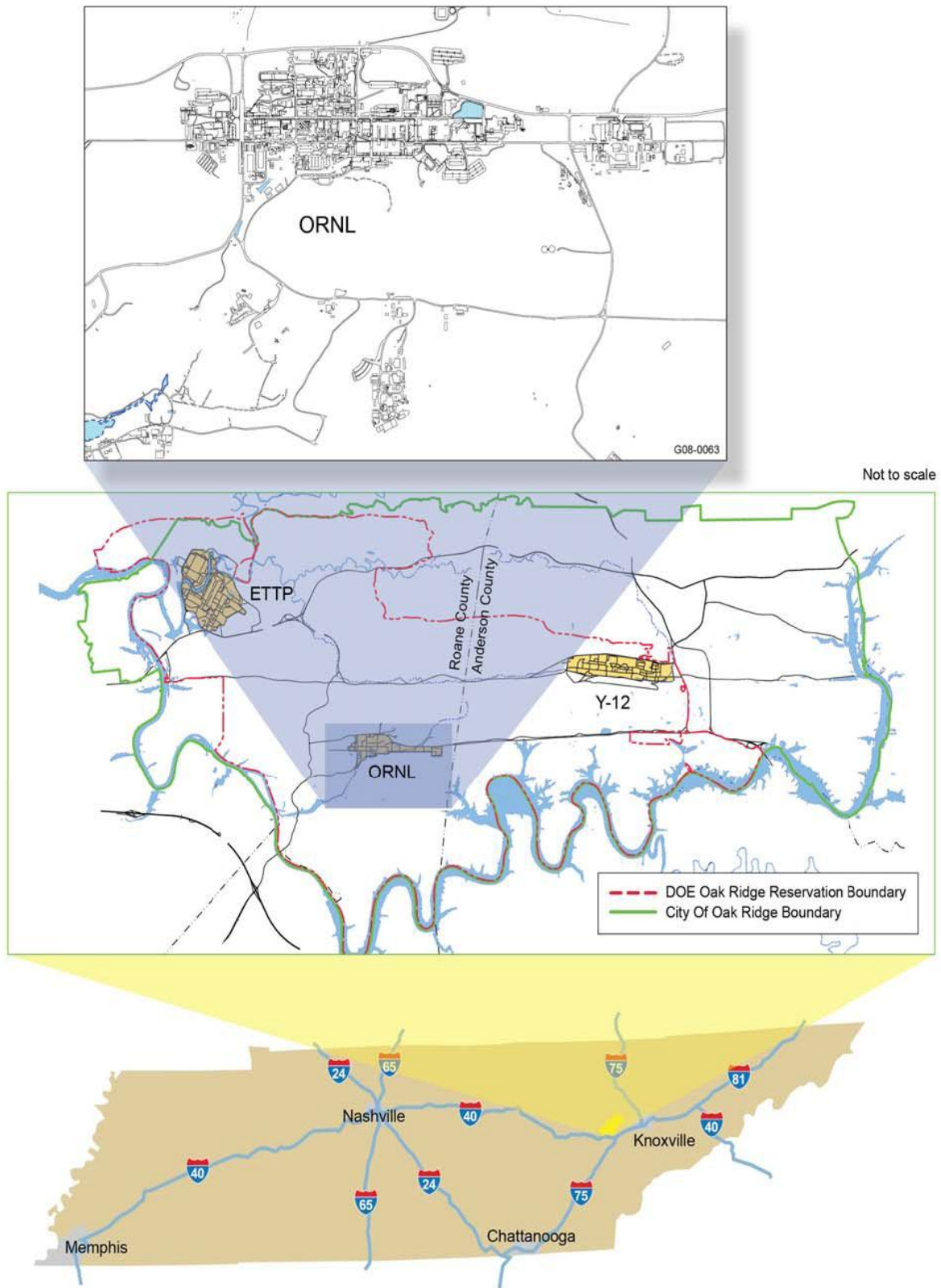


Fig. 1. The Oak Ridge Reservation and the location of Oak Ridge National Laboratory.

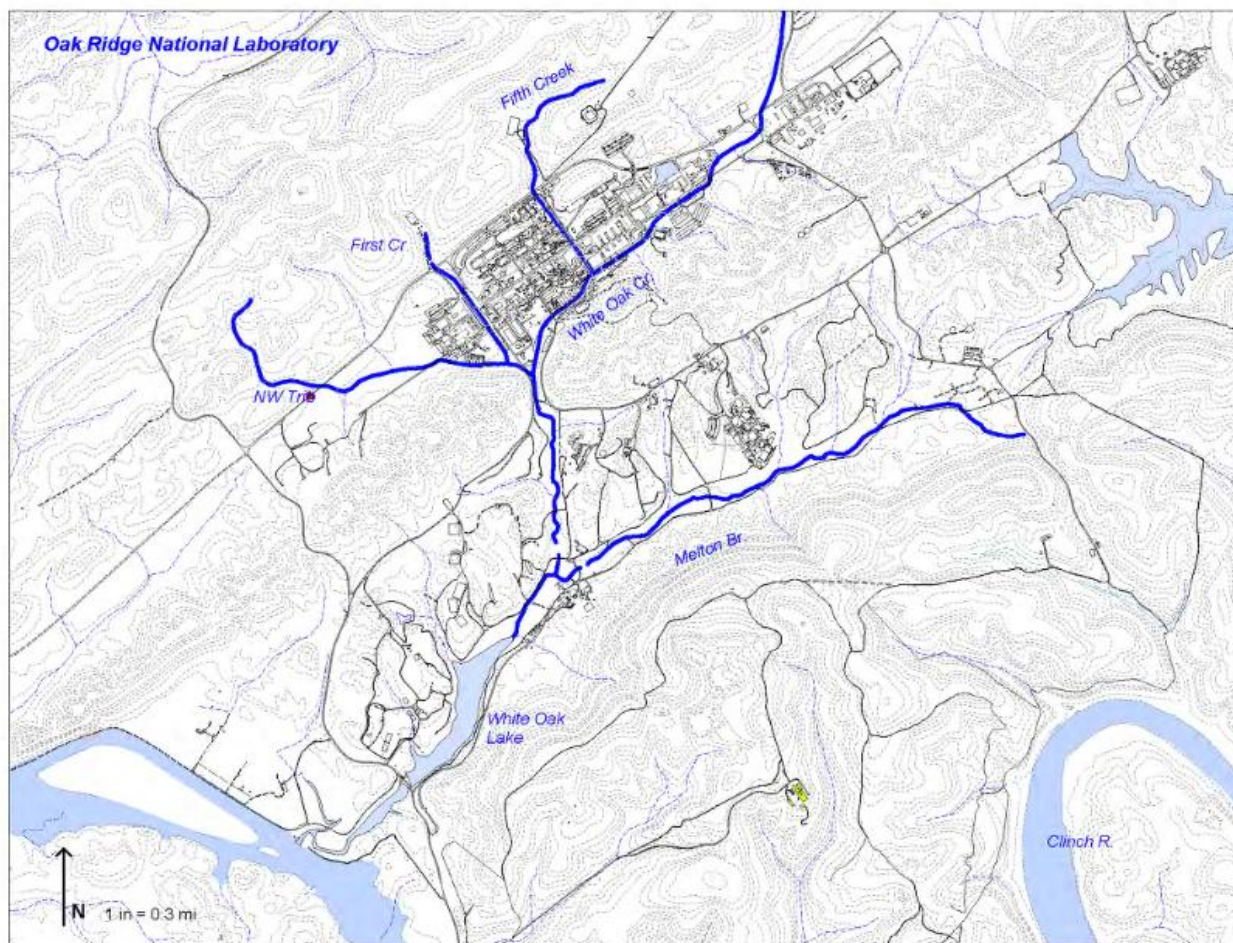


Fig. 2. Streams and tributaries at Oak Ridge National Laboratory.

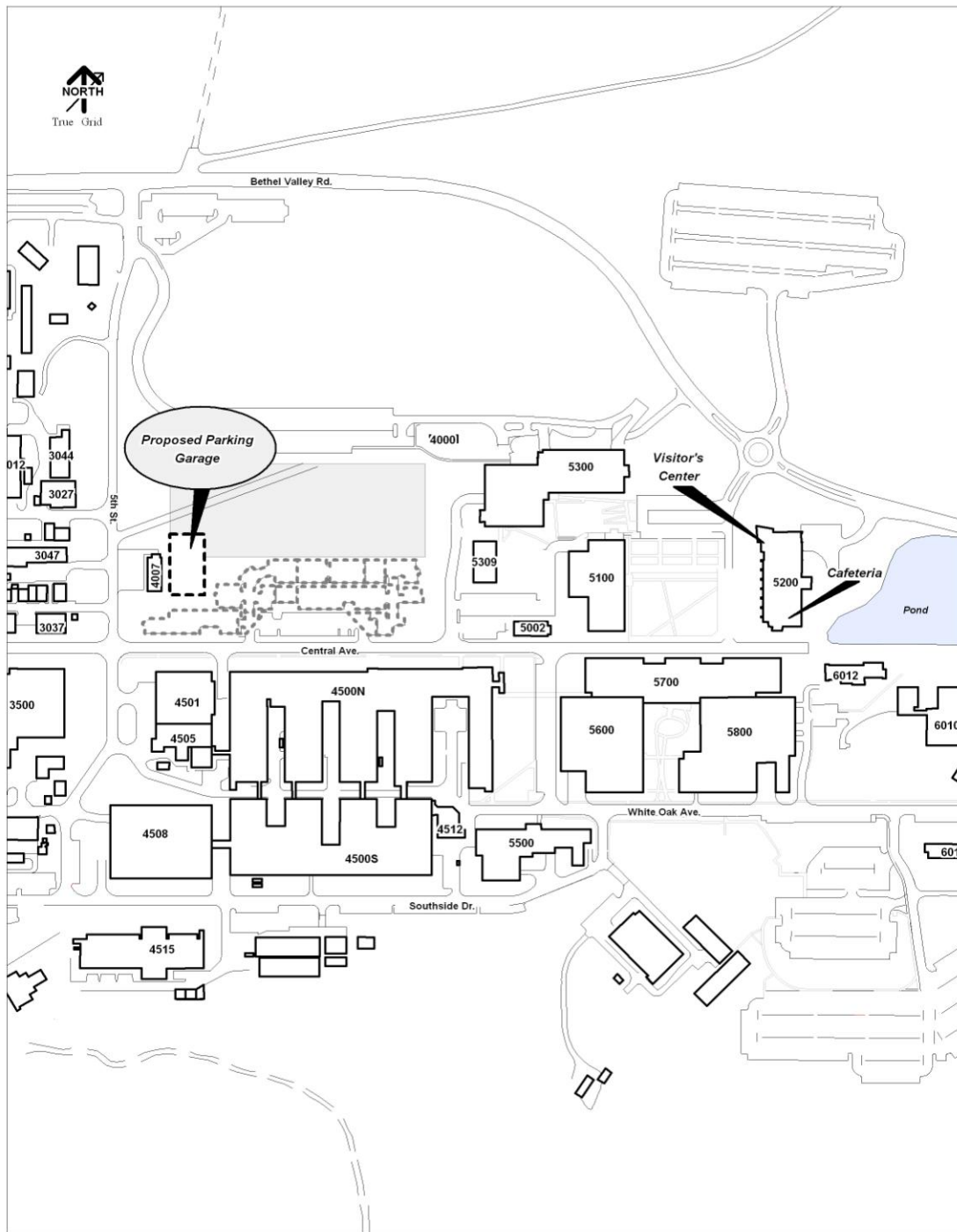


Fig. 4. Partial map of ORNL showing the site of the proposed parking structure, northeast of the intersection of Fifth Street and Central Avenue.

WETLAND EFFECTS

Wetlands are defined in 10 CFR 1022 as “those areas that are inundated by surface or groundwater with a frequency sufficient to support and under normal circumstances does or would support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mudflats, and natural ponds.”

A wetland survey was conducted of the area proposed for the construction of the parking structure and parking lot (“Wetland Survey of Pondered Areas Near the Flag Pole Parking Lot,” August 4, 2009). The three small wetlands (Fig. 3) were delineated (two pondered and one forested) according to the U.S. Army Corps of Engineers criteria (Appendix A). The two pondered wetlands, P1 and P2 (approximately 2871.73 ft² and 4006.30 ft², respectively) contain trees and shrubs (*Platanus occidentalis*, *Salix nigra*, *Fraxinus pennsylvanica*, *Juncus effusus*, *Typha latifolia*) along the banks, and cattails and soft rush predominate in the deeper center area of the ponds. Toward the top of the pond banks, the vegetation changes to either shrubby disturbance-adapted upland species or to mowed field species such as *Paspalum*, *Fescue*, and *Microstegium*. The two pond sites satisfy the necessary criteria to be considered jurisdictional wetlands. In addition, the forested area (W1) (approximately 1019.62 ft²) was considered a jurisdictional wetland. This site also contained trees and herbs (*Platanus occidentalis*, *Salix nigra*, *Carex sp*, *Solidago*, etc.) common to wetlands. It was observed that the wetland areas appear to have a hydrologic connection to a nearby stream, so the wetlands are therefore not isolated.

Additional information (M. J. Peterson, Professional Wetland Scientist and Ecological Assessment Group Leader, August 26, 2009) that was based on observation concluded that the site serves many of the beneficial functions that wetlands provide, including slowing storm flows, settling sediment loads, and improving downstream water quality (Fifth Creek and White Oak Creek). If carefully designed, it is possible that many of these functions could still be maintained as part of the construction project. The site also provides a source of water to various wildlife species, especially amphibians. However, the site is of very poor natural quality. The basins are man-made and were constructed relatively recently, with riprap and culvert features and steep banks along basin edges. The small narrow wetland is the result of overflow from the upper basin. Groundwater well pylons are in the middle of the narrow wetland site. The general topography and the amount of water in this area suggest that, historically, there may have been seep flow coming off the adjacent hillside, with intermittent or ephemeral flow from those seeps into the nearby Fifth Creek. The wetland plant communities are dominated by common plant species most able to colonize wetland sites. No unusual or rare plants were found. The site is surrounded by a parking lot/construction area, mowed areas, and highly disturbed secondary growth forest.

WETLAND MITIGATION

The proposed action will result in the destruction of a ponded and a forested wetland. An additional ponded wetland (P2 in Fig. 3) may be severely impacted during construction activities, but plans are to save it as part of the mitigation process. The Tennessee Department of Environment and Conservation (TDEC) has been consulted to start the mitigation process. The mitigation ratios required to compensate for the loss of wetlands will be set by TDEC during the aquatic resource alteration permitting process. The ratio will depend on the quality of the wetlands lost, the type of mitigation proposed, how well mitigation is expected to offset the lost wetland functions (flood storage, nutrient absorption, wildlife habitat, etc.), the likely long-term success of the mitigation area, whether the mitigation project is in the same or a different watershed, the nearby mitigation opportunities, etc. Past mitigation ratios at ORNL included enhancing the riparian zone along a reach of First Creek, at a ratio of approximately 10 to 1; returning a previously lost wetland, at a mitigation ratio of approximately 2 to 1; and several mitigation projects associated with Comprehensive Environmental Response, Compensation, and Liability Act activities.

The proposed action will result in no adverse effects on lives or property. No private residences will be affected. Workers performing the activities will operate in compliance with all applicable regulations and will take all precautions to minimize harm to themselves and to the environment.

SENSITIVE RESOURCES

The wetlands and the area impacted by the proposed action do not provide a natural habitat for State or Federal listed threatened or endangered plant or animal species. The affected area is not within the 100-year floodplain of any surface water body. In addition, no objects of historical significant or archeological artifacts are present in the area impacted by the proposed action.

ALTERNATIVES

Alternatives considered include the following:

Alternative 1. Do not construct a parking structure and lot in the central region of the ORNL facilities complex.

Alternative 2. Construct a parking structure and lot at a different location at ORNL.

Alternative 3. Construct a parking structure and lot in the central region of the ORNL facilities complex.

Alternative 1 allows the shortage of adequate parking at ORNL to continue indefinitely. Approximately 240 spaces have been eliminated due to the closing of the flagpole parking lot for the construction of a new Chemistry and Material Sciences Laboratory Building. In addition, it is expected that within the next 4 to 5 years, staff and personnel will increase by more than 1000

because of new programs and projects currently being initiated at ORNL. Therefore, this alternative is not practicable.

Alternative 2 was considered but dismissed because other suitable sites near the central ORNL facilities complex were deemed more appropriate for the construction of new facilities associated with upcoming programs that must be next to and contiguous with existing programs/facilities. The DOE American Recovery and Reinvestment Act and the Integrated Facilities Disposition Program will demolish many old facilities and infrastructures, thereby making needed brownfield area available for reuse. However, many of these sites are unsuitable for new facilities because of radiological contamination, so they will not be available in the near future. Environmentally and technically, Alternative 2 is not practicable.

Alternative 3, the preferred alternative, will involve (1) clearing the area of trees and vegetation, (2) leveling the site, and (3) constructing an approximately 200 ft long by 120 ft wide and three-story-high concrete and steel-supported parking structure. The surface areas on the west and south sides of the proposed garage will be leveled and asphalt-paved to accommodate approximately 70 vehicles. Asphalt-paved roads will be constructed to allow access to the parking structure and surface parking. Disturbed areas near the site will be leveled and seeded after completion of construction activities.

A Corps of Engineers Permit and an Aquatic Resource Alteration Permit will be obtained from the U.S. Corps of Engineers and from the state of Tennessee, respectively, prior to disturbance of the wetlands and an intermittent stream.

CONCLUSION

This study found no practicable alternatives to locating the action in the wetlands. The construction of the parking structure and parking lot will impact the wetlands in the vicinity. Appropriate mitigation to cover the loss of the wetlands will be determined by TDEC with input from ORNL Water Quality Program representatives. Best management practices will be followed, including installing double sedimentation fences and bale straw along the perimeter of the nearby intermittent stream. Seeding will be considered where necessary to control erosion. All activities will comply with applicable local, state, and federal environmental, safety, and health requirements. Overall, the impacts to wetlands at ORNL will be positive from this action due to planned mitigation.